**CURRICULUM VITAE**

**Gordon McLennan, MD FSIR**

Leprino Office Building, 5th Floor

12401 E 17th Avenue

Aurora CO 80045

Cell 720-724-6830

gmclenna@me.com

**EDUCATION:**

**UNDERGRADUATE:**  Johns Hopkins University, B.A., 1988

**GRADUATE:** Virginia Commonwealth University,

Medical College of Virginia, M.D., 1993

**POSTDOCTORAL:**  Mercy Catholic Medical Center, Darby PA

 Internship in General Surgery, 1993-1994

 Mercy Catholic Medical Center, Darby PA

 Residency in Diagnostic Radiology 1994-1998

 Indiana University School of Medicine, Indianapolis IN

 Fellowship in Interventional Radiology 1998-1999

**ACADEMIC APPOINTMENTS:**

July 1999 - June 2000 Visiting Lecturer,

Department of Radiology, Interventional Radiology Section,

Indiana University School of Medicine, Indianapolis IN

July 2000 – April 2006 Assistant Professor of Radiology,

Indiana University School of Medicine, Indianapolis IN

April 2006- December 2008 Associate Professor of Radiology,

 Indiana University School of Medicine, Indianapolis IN

December 2008-January 2014 Staff Interventional Radiologist

 Cleveland Clinic, Cleveland, OH

January 2014 – August 14, 2020 Professor of Radiology,

 Lerner College of Medicine at CWRU

Cleveland Clinic, Cleveland, OH

January 2014 – August 14, 2020 Adjunct Professor of Biomedical Engineering

 Cleveland State University, Cleveland, OH

September 1, 2020 – Present Section Chief, Interventional Radiology

 Vice-Chairman for Clinical Research

 David Kumpe Professor of Interventional Radiology

 Department of Radiology

 University of Colorado Anshutz Medical Center

Aurora, CO

**HOSPITAL AND OTHER APPOINTMENTS:**

1993-1998 Mercy Fitzgerald Hospital

1993-1998 Mercy Misericordia Hospital

1998-12/08 Indiana University Hospitals

1998-12/08 Wishard Memorial Hospital

1998-12/08 Richard L. Roudebush Veteran's Administration Medical Center

1998-12/08 Riley Hospital for Children

2003-12/08 Methodist Hospital, Indianapolis

2005-12/08 Clarian West Hospital, Avon

2006-12/08 Clarian North Hospital, Carmel

12/08-8/14/20 Cleveland Clinic

12/08- 8/14/20 Euclid Hospital

12/08- 8/14/20 Marymount Hospital

12/08-12/16 Lakewood Hospital

12/08- 8/14/20 Fairview Hospital

12/08- 8/14/20 Hillcrest Hospital

12/08- 8/14/20 South Pointe

12/08-12/12 Huron Hospital

12/08- 8/14/20 Ashtabula County Medical Center

12/08- 8/14/20 Lutheran Hospital

7/11- 8/14/20 Medina Hospital

9/1/20 - Present University of Colorado Hospital

10/1/20 - Present University of Colorado Highlands Ranch Hospital

**OTHER APPOINTMENTS AND PROFESSIONAL CONSULTANTSHIPS:**

Consultant: Bard Inc. - 12/08-12/14

Consultant: Cook Inc. - 12/08-12/10

Consultant: Lilly USA- 4/13- 4/16

Consultant: Genetech, Inc. – 7/02– 6/04; 1/17-12/19

Consultant: Guerbet – 8/16-8/18

Consultant: Medtronic, Inc. – 3/15-3/18

Consultant: Siemens - 6/10-present

Consultant: Scientific Advisory Board, Surefire, Inc 3/13-present

Consultant: Scientific Advisory Board, Rene Medical 5/16-present

Consultant: Bristol Myers Squibb-11/16-11/18

Consultant GE – Speaking 3/2018-present

Consultant BD – Speaking 7/19-present

**SPECIALTY BOARD STATUS:**

Diplomate, American Board of Radiology: Interventional Radiology/Diagnositc Radiology 10/16/17 – present

Certificate of Added Qualification—Vascular & Interventional Radiology, 2012-2017

Diplomate, American Board of Radiology, 1999

Diplomate, National Board of Medical Examiners, 1994

**LICENSURE AND CERTIFICATION:**

Indiana - 01049136

Ohio - 35-092660

Pennsylvania - MD437366

Michigan - 4301093899

Tennessee - MD0000044887

New York - 253283

Colorado - DR.0064869

NPI # 1922041946

**PROFESSIONAL SOCIETIES:**

Academy for Radiology Research Board of Directors 2012-2020

American College of Radiology, 1994-present

Society of Interventional Radiology, 1996-present

Service Line Advisor for Dialysis intervention, 2014-2018

Delegate to Academy of Radiology Research & Coalition for Biomedical Imaging Research, 2012- Present

Society of Interventional Radiology Foundation,

Immediate Past Chair, 2012-2014

Chairman, 2010-2012

Vice Chair, 2008-2010

Chair, Research Policy Committee, 2003-2007

Member, Board of Directors, 2003-2007, 2008-2014

Society of Cardiovascular and Interventional Radiology Research and Education Foundation,

Chair, Board Reorganization Task Force, 2003-2004

The Radiological Society of North America, 1994-present

 Scientific Program Chair for Interventional Radiology, RSNA Annual meeting 2016-2019

American Chemical Society 2008-2015

American Association for the Advancement of Science 2006-2009

American Heart Association, 1999-2008

American Medical Association, 1996-2008

American Roentgen Ray Society, 1994-2008

Indianapolis Angiography Club, 1998-2008

North American Vascular Biology Organization, 2002-2008

**HONORS AND AWARDS:**

Pink Gardenia Award, Breast Cancer Innovation Foundation 2018

SIR Foundation Philanthropist of the Year, 2016

Top Vascular & Interventional Radiologist, Cleveland OH 2015 - 2020.

Special Recognition Award, The Renal Network, Inc. June 30, 2013.

Cleveland Clinic Outstanding Innovator Award, 2010

Outstanding Faculty Award SIR Annual Meeting March 13-18, 2010.

Included in “Guide to America’s Top Radiologists” by Consumers’ Research Council of America, 2007

The Renal Network, Inc. President’s Award 2007

SIR Foundation Certificate of Appreciation; SIR Foundation Board of Directors 2003-2007

The Radiological Society of North America, Eastman Kodak/RSNA Scholar Award 2001-2003

The Radiological Society of North America, Research Award, 1999

Campbell-Klatte Radiology Research Symposium, Indiana University School of Medicine,

First Place for Oral Presentations, 1999

Mercy Catholic Medical Center, Chief Resident in Diagnostic Radiology, 1997-1998

**TEACHING ASSIGNMENTS:**

**CLINICAL TEACHING:**

Daily instruction in the theory and practice of interventional radiology to fellows, residents, and medical students. Daily clinical rounds include presentation of teaching cases and the discussion of teaching points in new and ongoing patient management cases.

Assigned to clinical interventional service duties, 3 days per week, 12 months per year.

Curriculum lectures to Radiology Residents - 2000-2008: (Indiana University)

* Vascular Access & Interventional devices, 1 hour/year
* Peripheral Vascular Disease I: Atherosclerosis 1 hour/year
* Peripheral Vascular Disease II: Angioplasty & Restenosis,1 hour/year
* Hemodialysis Intervention, 1 hour/year
* Noon Conference: Case presentation & lecture, 3 hours/year
* Research in Radiology: 2 hours/year

Advanced lectures to Vascular & Interventional Radiology Fellows – 2000-2008: (IU)

* Vascular Access & Interventional devices, 1 hour/year
* Peripheral Vascular Disease I: Atherosclerosis 1 hour/year
* Peripheral vascular disease II: Angioplasty & Restenosis,1 hour/year
* Hemodialysis Intervention, 1 hour/year
* Interventional Oncology 1 hour/year

Lectures to Interventional Radiology Fellows and Radiology Residents – 2008–present (CCF)

* Introduction to Angiography
* PVD Diagnosis
* PVD Treatment
* Hemodialysis Interventions
* Spine Intervention
* Interventional Oncology Overview
* Pelvic Pain & Varicocele Treatment
* Percutaneous Drainage
* Clinical Management in Interventional Radiology

Lectures to Interventional Radiology Fellows and Radiology Residents (Continued)

* Venous Thromboembolic Disease
* IVC filters
* Biliary Intervention
* GI/GU intervention
* Endovascular AVF creation

**PRESENTATIONS WITHIN THE INSTITUTION:**

Nephrology Fellows lectures:

* Physical assessment of the dialysis access.. 2005-2008, 2018, 2019
* Imaging in Renal Disease 2009
* Imaging & Intervention in nephrology patients; 2012-2016, 2018

Gynecology Department:

* 5/9/2007: Gyn Resident Lecture: “Update on Uterine Artery Embolization”
* 2/20/08: Gynecology Grand Rounds: “Pelvic Congestion Syndrome”

Palliative Medicine

* 1/13/10: Palliative Medicine Grand rounds: “Interventional Radiology in Palliative Cancer treatments”

Vascular Medicine

* 12/2/12: IVC Filters
* 12/16/14: IVC Filters

Lerner College of Medicine Medical Students Radiology Interest Group

* 5/24/11 – Interventional Radiology Research Update

Radiology Grand Rounds

* 3/18/2015: IVC Filters

**RESEARCH MENTORING:**

**Masters & PhD Graduate Students:**

* Clinical Faculty Advisor/PhD Thesis Committee for David Thor Johnson, MD/PhD student, Completed PhD on Mitochondrial Heterogeneity in Rats in 2006.
* Research Faculty Advisor & Thesis Committee Chair for Nischal Koirala PhD Student, Cleveland State University, Department of Biomedical Engineering. Flow Characterization Using Quantification of Digital Subtraction Images During Angiography. Expected Graduation 8/2018.
* Faculty Advisor for Aaron McBride, Masters of Clinical Research Candidate; Lerner College of Medicine at CWRU. Expected Graduation 6/30/2019

**Radiology Residents:**

W. Brooks Davis, MD Arterial Injury Associated with Pelvic & Acetabular Fractures. Presented at AUR 2003.

Patrick Hurley, MD Radiology Resident Research Elective, Azo initiators for the treatment of liver cancer. 9/1/04 – 11/30/04

Shadie Majidi, MD and Darren O’Neill, MD. Resident Poster submission to Association of University Radiologist annual meeting, Montreal Canada, 2005. “Percutaneous angiographic diagnosis and treatment of aortic injury.”

Todd Mitchell, MD Resident Educational Poster submission to RSNA 2007 on “A Simple Technique for Improving the Delivery of Yttrium-90 Microspheres, While Reducing the Risk of Refluxing into Communicating Vasculature”

Jason Ford, MD Resident Educational Poster submission to RSNA 2007 on “Yttrium-90 Intra-arterial Brachytherapy for Hepatocellular Carcinoma”

Joel Vander Lugt, MD Resident Manuscript preparation to JVIR “Case report of pulmonary artery aneurysm following radiofrequency ablation of a stage IIIB lung tumor”

Matthew Rainey, MD, Resident Research project “IMPDH2 & Folate expression in Human HCC” Mentored 1 month Student project for submission to SIR annual Meeting 2011.

Mike Graybill, MD, Resident Research project on “Celiac Stenosis in patients undergoing liver transplant.”

Isaac Dahan, MD, Resident Research project on “Comprehensive Analysis of the Anterolateral Thigh Flap Vascular Anatomy” Presented at SIR 2012 & Published Manuscript.

**Fellows in Interventional Radiology:**

Erik Cressman, MD. American Board of Radiology, Hollman Research Scholarship awarded 7/1/2001. Project title; The use of azo initiators in the treatment of liver cancer.

Brian Hankins, MD. Campbell-Klatte Radiology Research Symposium;

Project title; Retrospective review of interventions on non-maturing native fistulae.

Abdul Raman Quadeer, MD. “Comparison of Gelfoam and Coils for embolization of splenic trauma.” Submission to SIR 2008 & JVIR.

Van Young, MD. Flow response to acute renal artery occlusion. Mentored project for SIRF/GE Clinical Fellowship Research Award 7/1/07-6/30/08

Larry Kelly, M.D. & Tilah Bahir, M.D. Folate receptor presence on N1S1 cells (Mentored project for SIRF/GE Clinical Fellowship Research Award) 7/1/08-12/5/08

Raja Almestady, MD The Effect of Benzamide Riboside on H1F1α and VEGF 7/1/11-6/30/11

Matt Tam, MD Utility of Amplatz Plug in Splenic Artery Embolization & complications associated with the G2 & Bard Recovery filters 7/1/2010-6/30/2011

Fadi Aris, MD Performed Retrospective studies of IVC filter removal, Radioembolization, Ovarian Artery Embolization during UAE & Portal Vein embolization. 7/1/2011-6/30/2012

Ravi Kodur, MD Performed Retrospective studies of IVC filter removal, Radioembolization, Ovarian Artery Embolization during UAE & Portal Vein embolization. 7/1/2011-6/30/2012

Rex Pillai, MD Performed a Survey Based project to develop an “ideal” Interventional Radiology Medical Student Rotation. 7/1/2015-6/30/2016.

Nadia Khan, MD Presented Oral Presentation at SIR 2016 on Folate targeting of Cancer Cells using Nanotechnoloty. 7/1/2015-6/30/2016.

**Other Mentorships:**

Fanna Lui, MD; Nephrology Fellow. Mentored Manuscript preparation of retrospective review of translumbar dialysis catheters.

Shelley Brancatelli, RT RRA; Mentored on preparation of abstract for SIR annual meeting in New Orleans, 2014; Abstract on outcomes of implementation of an IVC filter removal clinic was presented as a featured abstract.

Maureen Zika, RT & Kelley Hardy, RT; Mentored on preparation of abstract for SIR annual meeting in San Diego, 2015; Abstract on radiation dose from cone beam CT use for percutaneous renal access was accepted for oral presentation.

**Summer Student Mentoring Programs:**

High School Students:

7/1/02-8/1/02 Chris Williamson; Testing of a covered tracheobronchial stent.

7/21/01-08/7/01 Jeremy Scott; Local delivery of I125-IUdR for restenosis.

6/1/05-8/15/05 Nathan Becker; Prototype Percutaneous Thrombolytic Device: Testing in Subacute Inferior Vena Caval Thrombosis in a Canine Model

Summer, 2015 &16 Aravind Sompalle: Cell Culture Based Testing of a Novel compound for Cancer Detection; Presented at North East Ohio Science & Engineering Fair, 2016. Role of Retinoic Acid in Hepatic Stellate Cell Activation: In preparation for presentation at NEO Science & Engineering Fair.

Summer 2017

University & Medical Students:

5/21/03-8/10/03 Kimberly Brown; Matrix expression in venous stenosis.

5/18/03- 8/10/03 David Thor Johnson, MD/PHD student, The Radiological Society of North America Medical Student Award; Liposomal encapsulation of mitochondria.

6/1/06-7/2/07 Minhajuddin Khaja, MS4/MBA; Effect of Benzamide Riboside on HCC.

6/1/06-8/30/06 Greg Nadolski, MS4 Student; Effect of Benzamide Riboside on HCC.

7/09-8/09 Ben Ebner visiting Medical Student to the Cleveland Clinic for Clinical IR rotation

8/09-11/09 Isaac Dahan, CWRU Medical Student working on research projects on perforator artery identification on CTA & outcomes from biliary drainage in benign biliary disease.

08/10-12/10 Andrea Pannunzio, CWRU college Student Clinical Observership in Interventional Radiology.

05/10-08/10 Craig Lance, CWRU Medical Student working on research project: “Clinical outcomes of transcatheter therapy for liver cancers”

11/10-6/12 Emmanuel Obusez; CCF Lerner School of Medicine Medical Student: "Outcomes from biliary drainage in benign biliary disease"

05/11-6/13 Ali Farmarzalian, CWRU Student Research Project “1 Day apoptosis from Benzamide Riboside with MRI correlation in N1S1 hepatoma Rat model”

7/13-Present Xin Li, CWRU Student Research Projects, Comparison of radioembolization with & without Surefire use; Tumor microenvironment of HCC

06/16-08/16 Xin Li, CWRU Elective, Role of Hepatic Stellate cells in HCC development & metastasis

06/16-08/16 Sean McLennan, College Student Research project on Y-90 dosimetry software validation. Poster accepted to SIR 2017.

6/17-5/18 Min Lang, CWRU Elective & Research month; Pathways of Hepatic Stellate Cell interactions with HCC

7/17-5/18 Brian Chin, CWRU research elective. Role of Heat Shock Protein 70 in HCC drug resistance.

6/17-8/17 Akshay Wadera, SIR Summer Research Program recipient studying Hepatic Stellate Cell effect on Human derived HCC.

7/17-Present Anouva Krall, CWRU Demographics & Treatment options for chronic pelvic pain in women.

7/17-Present Daniel Li, CWRU Demographics & Treatment options for chronic pelvic pain in women.

6/18-8/18 Lindsay Farrell, Summer College student; Project: Dendrimer based drug delivery system for treatment of HCC & Breast Cancer

6/18-8/18 Anthony Osifuye SIR Summer Research Program Recipient studying hepatic stellate cell effect in HCC

6/19-8/19 Caleb Heiberger SIR Summer Research Program Recipient studying mTOR inhibition in management of HCC

NIH Summer Internships:

6/2/03-8/10/03 Jonathon Hayes; Apoptosis in venous stenosis.

5/17/04-8/10/04 Joshua Weir; The effect of benzamide riboside on VX2 liver cancer.

5/23/05-8/12/05 Joshua Weir; Prototype Percutaneous Thrombolytic Device: Testing in Subacute Inferior Vena Caval Thrombosis in a Canine Model

6/5/06-8/4/06 Kareem Agunbiade: Benzamide Riboside Induced Apoptosis in WB H-ras Cells

6/6/07-8/3/07 Lara Lazarre: Tumor Growth Characteristics of N1-S1 liver cancer in rats

6/08-8/08 Lillian Brady & Bunmi Akintomide: In-Vitro testing of benzamide riboside induced apoptosis in N1S1 cells and hepatocellular cancer

**TRAINEES**

**Clinical Trainees as IR Fellowship Director, 12/2008 – Present**

 7/1/11-6/30/12: Fadi Aris Currently Faculty, McGill University (Adj)

 Ravi Kodur Currently in Private Practice in Australia

 7/1/12-6/30/13: Ram Gurajala Currently Staff Faculty, Cleveland Clinic

 Amit Gupta Currently Faculty, SUNY Downstate

 Dustin Thompson Currently Staff Faculty, Cleveland Clinic

 7/1/13-6/30/14 Pasquale Evangelista Currently Staff, VAMC, Atlanta GA

 Mohammed Sarawan Currently Staff, VAMC, Des Moines IA

 Michael Graybill Currently in Private Practice

 7/1/14-6/30/15 Arvin Bagherpour Currently in Private Practice

 Todd Hoffman Currently in Private Practice

 Amit Kalia Currently Staff, CCF Florida

 7/1/15-6/30/16 Rex Pillai Currently Faculty, UC Davis

 Nadia Khan Currently in Private Practice

 Mohammed Al-Natour Currently Faculty at CWRU

 7/1/16-6/30/17 Ben Tritle Currently in Private Practice

 Isaac Dahan Currently Faculty CWRU, Metro Health

 Wifredo Fernandez Currently in Private Practice

7/1/17-6/30-18 Dane Mackey Currently Staff in Private Practice

 Ali Malik Currently Staff in Private Practice

 Alex Singleton Currently Staff at CCF Akron

 Mohammed Shahin Currently Abdominal Fellow CCF

 7/1/18-6/30/19 D Alex Paratore Currently Staff CCF

 Sasan Partovi Currently Staff CCF

 Haiying Yu Currently Staff in Private Practice

 7/1/19-6/30/20 Diane Szaflarski To join CCF staff 7/1/20

 Abed Ghandour To join CCF Akron General Staff 7/1/20

 Jennifer Young To Join Private Practice 7/1/20

 Aziz Al Gharras Will Return to Saudi Arabia 12/20

**Research Fellows**

 7/1/02-6/30/04 Farid Al Adham Currently Faculty in Aman Jordan

 7/1/04-6/30/06 Dianbo Zhang Currently Assoc Prof; SUNY Upstate

Yonghua Xu Currently Dept Head Chinese Academy of Science; Beijing

7/1/06-6/30/08 Shenghong Ju Currently Faculty; Southeastern

 University; Nanjing, China

7/1/12-6/30/13 Dayong Zhou Currently Faculty in China

7/1/15-6/30/16 Vivian Klungboonkrong Current Faculty Khon Kaen University,

 Thailand

7/1/16-present Ehsan Fayazzadeh Presently in Fellowship

7/1/17-6/30/18 Eniola Fagbongbe Radiology Residency in Memphis, TN

**Graduate Students**

 7/1/02-6/30/04 David Thor Johnson Clinical Advisor MD/PhD, PhD 2006,

 MD 2008

Currently Faculty Medical University of South Carolina

 7/1/04-6/30/06 Nischal Koirala Research Advisor for BME PhD

 Cleveland State University

Currently Post Doc at University of South Dakota

**MULTIDISCIPLINARY TEACHING CONFERENCES**

2000-2008 Vascular Conference, Indiana University Hospital, weekly

 Dialysis Access Conference, Indiana University Hospital, biweekly

Multidisciplinary Liver Tumor Conference, Indiana University Hospital, monthly; (CME category 1 accredited)

2008-Present Multidisciplinary Liver Tumor Board, CCF, Weekly. ; (CME category 1 accredited)

2012-Present Multidisciplinary Dialysis Access Conference, CCF, Monthly; (CME category 1 accredited)

2015-Present Multidisciplinary Chronic Pelvic Pain Conference, CCF, Monthly; (No CME)

**PROFESSIONAL SERVICE:**

**SERVICE TO THE DISCIPLINE**

**State and Regional:**

***The Renal Network Inc./Nephstrategies, Inc.***

* + Member Governance Committee 2013-2015
	+ Member, Board of Directors, 2004-2015
	+ Chair, Indianapolis Vascular Access Advisory Panel, 2003-2008
	+ Cannulation Workshop Coordinator at Vascular Access Renal Network, December 7, 2005, April 26, 2006, and August 30, 2006.
	+ Lectured on AV Fistula Access and treated training video on cannulation
	+ Interventionalist Fistula First Work Group, Member 2007-2015
	+ PICC Line Work Group, Member 2007-2015
	+ Annual Meeting Planning Committee 2010-2015

**National and International:**

***SIR News***(Society of Interventional Radiology News)

Assistant Editor, 2004-2005

Column Editor, “Research Forum”, 2002-2005

***Society of Interventional Radiology Foundation***

Foundation Gala Committee 2011-2018

Past Chairman, 2012-2014

Chairman 2010-2012

Vice Chair, Board of Directors 2008-2010

Member, Board of Directors, 2003-2007, 2008-2014

Chair, Research Policy Division, 2004-2007

Grant Reviewer, 2004-present

***Society of Interventional Radiology***

Service Line Advisor for Hemodialysis Intervention 2013-Present

Chair, Board of Directors Reorganization Task Force, 2003-2004

Chair, Legs for Life National Screening Program, Reorganization Task Force, 2004-2005

***Academy of Radiology Research & Coalition for Biomedical Research***

SIR representative to Academy of Radiology Research Board of Directors 2012-Present

SIR representative to Coalition for Biomedical Resarch Board of Directors 2012-Present

***SIR Meeting Responsibilities:***

* Society of Interventional Radiology 28th Annual Scientific Meeting, Salt Lake City, 2003; Program Coordinator, Grant Writing Workshop
* Society of Interventional Radiology 29th Annual Scientific Meeting, Phoenix, 2004; Program Coordinator, Grant Writing Workshop; Program Coordinator, Young Investigator Development Symposium
* Society of Interventional Radiology 30th Annual Scientific Meeting, April 2005, New Orleans, LA; Program Coordinator, Research Development Symposium
* Program Coordinator, Research Lunch Seminar at SIR 32nd Annual Meeting, March 2007, Seattle, WA

***Radiological Society of North America***

* Scientific Program Chair for Interventional Radiology, 2016-Present

***Other Meetings:***

* Society of Interventional Radiology Keystone Conference, “End Stage Renal Disease”, July, 2004, Kiawah, SC. Conference Co-Director
* National Kidney Foundation Clinical Meeting; May, 2005, Washington D.C.
	+ Member, Program Committee
	+ Co-Director, “Imaging in Nephrology” Physician’s Course
	+ Co-Chair, Plenary Session, “Fistula First and Forever”
* Biomedical Imaging Research Opportunities Workshop III, 2005, Washington D.C. Member, Organizing Committee
* Biomedical Imaging Research Opportunities Workshop IV, 2006, Washington DC: also co-chair of Image Guided Intervention Program.
* 6/20-21/11, Faculty of SIR Leadership Academy, French Lick, IN
* Academic Interventional Radiology Symposium, Washington DC, Organizing Committee 2016-Present

***Manuscript Reviewer:***

* Journal of Vascular and Interventional Radiology, 2000-present
* American Journal of Roentgenology, 2004-2009
* Cardiovascular and Interventional Radiology 2005-present
* Molecular & Cellular Biochemistry, 2009-2011

***Other Service Work:***

Made demonstration video for Cook Inc. on Thoracic aortic endograft deployment. 2007, 2008.

**PATIENT CARE & CLINICAL SERVICE**

 **Clinical Areas of Expertise:**

* Interventional Oncology
* Venous Thrombo-Embolic Disease
	+ PE Thrombolysis
	+ IVC Filter Retrieval
	+ Management of Chronic Venous Insufficiency
* Chronic Pelvic Pain
* Spine Augmentation & MSK ablation
* Hemodialysis Interventions
* Revascularization for PAD & FMD

**Clinical Operations Service:**

* Co-Director, Cleveland Clinic Dialysis Access Conference 2009-Present (Joint program with Vascular Surgery & Nephrology)
* Director, Outpatient Interventional Radiology Clinic, Indiana University Medical Group
* Specialty Care (IUMG-SC) Clinic at Springmill 2005-2007.
* Director, Interventional Radiology Services at Clarian West Hospital, 2005-2007
* Director, Interventional Radiology Services at VA Hospital, 2006-12/3/08
* Conference Coordinator, Dialysis Access Conference Indiana University 2002-2007.
* Quality Assurance Data Supervisor, database analysis for tunneled catheter and dialysis interventions performed by the interventional radiology section, 2002-2008.

**UNIVERSITY/INSTITUTIONAL SERVICE:**

**Cleveland Clinic Administrative:**

Department:

* Director of Interventional Radiology Research 2008-Present
* Fellowship Director, Interventional Radiology 2011-Present
* Residency Director, Interventional Radiology 2018-Present
* Member, Radiology Research Committee, 2015-Present

Institutional:

* Member, Institutional Review board, 1/2015- Present
* Member, Institutional Animal Care & Use committee, 1/2010-12/2013
* Member, Search Committee for Nephrology Chairman, 1/2013-present
* Program Director, Cleveland Clinic-Metro Health Interventional Radiology Residency Program.

Adjunct Faculty Appointments:

* Cleveland State University: Adjunct Professor of Biomedical Engineering 2013- Present
* Lerner College of Medicine at Case Western Reserve University: Professor of Radiology 2014- Present

**Indiana University Administrative:**

Department:

* Vice Chair, Radiology Research Committee 2003-2006
* Clinical Director, Radiology Research Program, 6/21/05-2007
* Director, Interventional Radiology Research Lab 2004 – 12/3/2008

Institution:

* Office of Vice President for Research Administration, Faculty Advisory Board 2007-12/3/2008
* Vice-Chair, Institutional Animal Care and Use Committee, 2003-11/2006
* Chair, Institutional Animal Care and Use Committee, 11/2006 -12/3/2008
* Faculty Community Relations Committee, 2002-2006
* Animal Housing Task Force, 2004
* Lab Animal Resource Center Reorganization Task Force, 2004

**OTHER PROFESSIONAL ACTIVITIES:**

**Invited Lectures and Addresses:**

1. Society of Cardiovascular and Interventional Radiology 27th Annual Scientific Meeting, Baltimore, April 6-11, 2002. Faculty, Grant Writing Workshop.
2. Society of Cardiovascular and Interventional Radiology 26th Annual Scientific Meeting, San Antonio, March 3-8, 2001. Faculty, Interventional GI Workshop.
3. Society of Interventional Radiology 28th Annual Scientific Meeting, Salt Lake City, March 27-April 1, 2003. Faculty, Grant Writing Workshop.
4. Society of Interventional Radiology 29th Annual Scientific Meeting, Phoenix, March 25-30, 2004. 1) Plenary Presentation, Cellular Mechanisms of Venous Stenosis, 2) Faculty, Grant Writing Workshop.
5. First Hospital of Beijing University, Beijing, China, July 5, 2004. Guest Lecturer, “Paradigms in Local Drug Delivery and the Preclinical Research Laboratory”.
6. Shanghai Sixth People’s Hospital, Shanghai Jiao Tong University, Shanghai, China, July 6, 2004. Guest Lecturer, “Advances in Peripheral Vascular Disease”.
7. 6th National Congress of Interventional Radiology, Shanghai China, July 7, 2004. Keynote Address, “Paradigms in Local Drug Delivery”.
8. Southeast University Zhong-Da Hospital, Nanjing, China July 8, 2004.Guest Lecturer, “Paradigms in Local Drug Delivery”.
9. Society of Interventional Radiology Keystone Conference - End Stage Renal Disease, July 13-16, 2004, Kiawah, SC. Plenary Presentations:
	1. Cellular Mechanisms of Venous Stenosis
	2. Imaging to Promote AV Fistula Use
	3. The Thrombosed Native Fistula
	4. The Interdisciplinary Approach to Dialysis Access Management
	5. TPA - Does it work?
10. Society of Interventional Radiology 30th Annual Scientific Meeting, New Orleans, LA
March 31-April 5, 2005.
	1. Plenary Presentation, Fistula First
	2. Faculty, Bronchial Stenting Workshop.
11. Society for Biomaterials April 27-30, 2005, Memphis TN “Peripheral Vascular Disease Clinical Workshop”
12. National Kidney Foundation Clinical Meeting, May 4-7, 2005, Washington D.C.Plenary Presentations
	1. Physical Examination and Assessment of the Dialysis Access
	2. Imaging and Interventions to Maintain Native Fistulae.
13. Society of Interventional Radiology 31st Annual Scientific Meeting, Toronto, Cananda March 29 – April 2, 2006.
	1. Hemodialysis Categorical Course “An Overview of Chronic Kidney Disease and End Stage Renal Disease”
	2. Moderator, Animal Research Scientific Session.
14. Indiana Center for Vascular Medicine & Biology, September 25, 2006. Indianapolis, IN “Image Guided Interventions, Surgery for the 21st Century”
15. American College of Chest Physicians October 25, 2006, Salt Lake City, UT Plenary on Massive Hemoptysis: Presentation: “Image Guided Interventions for Massive Hemoptysis”
16. World Congress of Interventional Oncology symposium “Evidence-Based Medicine in the Medical Device World: Where Are We and Where Do We Need to Go?” Lecture entitled: “The Importance of IR involvement with the Cooperative Research Groups” 5/15/2007 Washington DC.
17. Society of Interventional Radiology 33rd Annual Scientific Meeting, San Diego, CA, 3/6-011/09.
	1. Plenary Moderator “Research to better practice”
	2. Workshop Faculty ‘How and why you do (and don’t) get paid for IR services – and what you can do about it”.
18. Society of Interventional Radiology 34th Annual Scientific Meeting, Tampa, FL, 3/12-18/10.
	1. Plenary on Dialysis Interventions
	2. Workshop Coordinator: Dialysis Interventions.
19. World Congress of Interventional Oncology, Philadelphia, PA, June 9 – 12, 2010.
	1. Moderator Tumor Biology & Ablation Scientific sessions.
	2. Invited Speaker, “Advanced Applications of Image fusion & iGuide”
20. Siemens International Sales Meeting, Oslo, Norway, October 3, 2010, “Image fusion for guidance in Interventional Oncology”
21. Society of Interventional Radiology 3rd Annual Scientific Meeting, Chicago, IL, 3/26-30/11.
	1. Workshop Coordinator: Dialysis Interventions.
	2. SIR foundation Gala Organizing Committee Member.
22. University of Minnesota, Minneapolis, MN, May 16, 2011. Visiting Professor: “Image fusion in Interventional Radiology’ & Senior Board Reviews.
23. Organized evening symposium for palliative medicine on approaches to painful spine & bone cancer. Cleveland, OH, May 25, 2011. Included presentations from Radiation Therapy, Nuclear Medicine, & Interventional Radiology
24. World Congress of Interventional Oncology, New York, New York, June 9-12, 2011.
	1. Siemens Lunch Lecture: Image guidance with fusion & iGuide;
	2. Moderator, Pre-clinical Research.
25. UMDMJ-NJMS Multidisciplinary Hepatocellular Carcinoma Symposium. Invited Lecture on Drug Eluting Beads. 10/12/2012 Elizabeth, NJ.
26. Invited Faculty for 16th International Symposium of Future Directions: Palliative Medicine and Supportive Oncology 2013;February 21-23, 2013 at the Key Largo Bay Marriott in Key Largo, FL. Topic: Palliative Interventional Radiology.
27. Invited Faculty for Siemens Innovations Meeting, July 25-27, 2013, San Antonio, TX. Topic: Functional Imaging in Interventional Radiology.
28. Organizing committee for 2015 Academic Interventional Radiology Symposium, Washington DC 2015-2020
29. Radiology/Nephrology Grand Rounds; Royal Victoria Hospital 2/17/17: “Innovations in Dialysis Access Interventions”
30. Guest Lecturer, Department of Diagnostic Radiology, McGill University 2/17/17
	1. Grand Rounds: Innovations in Dialysis Access intervention
	2. Teaching Conference for Residents: Pelvic Pain, Venous Thromboembolic Disease & Case Conference
31. Nephrology Academic Rounds, Nephrology Department, McGill University 2/17/17
32. American Chemical Society, 10/9/17. Keynote address to Elastomer meeting: “The Role of Polymers in Interventional Radiology Therapies”
33. Lubirzol Corporation, Invited lecture1/23/18: The Role of Polymers in Interventional Radiology
34. World Congress of Interventional Oncology, Boston, MA 6/7-10/18. Invited Speaker by GE: “Advanced Imaging for Percutaneous Interventions”.
35. Digestive Disease Innovations 10/17-20/2018, New York, NY. Invited Talk: Case Based ablation workshop: Tools & Techniques: Lecture: Cryoablation.
36. GE, Invited lecture 10/24/18: Integrated Imaging in the IR Suite: Advanced Applications, Buc, France
37. Chinese Society of Interventional Radiology 4/18-20/2019. Invited presentations:
	1. Educational Transitions: From Fellowship to 6 year residency in the US
	2. Spine Augmentation
	3. Immunotherapy in HCC. Nanjing, China
38. Invited lecture at GEST 5/9-12/2019: Visceral Aneurysms
39. AVATAR (Association of Vascular Access & inTerventiAl Renal Physicians 7/19-21/2019 Delhi, India. Invited talks
	1. The Chameleon Technique: New approaches to Access Maintenance
	2. CO2 as a contrast agent
	3. Intravascular Ultrasound in access imaging
40. Colombian Radiological Society: 8/8-11/2019: Cartagena, Colombia Invited talks
	1. Dialysis Access Intervention
	2. Endovascular AVF creation
	3. GI & GU cases
	4. Limb Salvage
	5. Uterine Artery Embolization
	6. Pelvic Congestion Syndrome
41. Digestive Disease Innovations 10/16-19 2019 New York, NY. Invited Talk: Liver Ablation: Tips & Tricks
42. Society of Interventional Oncology Master Class: Catheter Directed Therapy for the new IR/.IO Practice 11/2-3 Chicago, IL. Invited Talk: Outcomes of Embolotherapy for Other Cancers (cholangioCA, mCRC, Breast & others)
43. XIII Colsanitas Diagnostic Imaging Course, Bogota, Colombia 2/14-15/2020. Invited Talks
	1. Pelvic Congestion Syndrome
	2. Uterine Artery Embolization
	3. Endovascular AVF creation
	4. Dialysis Access intervention
	5. Interesting GU cases

**DATA SAFETY REVIEW COMMITTEES & SCIENTIFIC ADVISORY PANELS;**

Member, Data Safety Monitoring Board & Clinical Events Committee for B Braun IVC filter trial: VenaTech Convertible Vena Cava Filter US Multi-Center Clinical Trial. 2011-2016

Member, Data Safety Monitoring Board; Celonova Uterine Artery Embolization with Embozene Multicenter trial. 2012-2016.

Member, Scientific Advisory Panel: Surefire, Inc. 2012-Present

Member, Scientific Advisory Panel: Rene Medical, Inc. 2015-Present

Member, Siemens Interventional Oncology Advisory Board 2010-Present

Member, Scientific Advisory Panel: Stealth Medical 2014-Present

**GRANTS AND RESEARCH SUPPORT:**

**ONGOING SUPPORT:**

Argon 4/1/2020-4/1/2021

Retrospective Review of the Option Elite filter $154,833

Siemens 2/1/2020-2/1/2021

Principle Investigator, Embolization Guidance to improve Y-90 performance $165,435

Internally funded from philanthropy 12/15/14-Present

Molecular Mechanisms of Liver Cancer development & metastasis $500,000

**COMPLETED STUDIES:**

Siemens 7/1/12-6/30/2019

Principle Investigator, In Vitro Validation of image guided flow measurements $60,000

POLY1408GM 4/1/2014-3/31/2016

Principal Investigator, SBIR Phase II: Green Nanotechnology for Medicine: Scaling up the Synthesis of Novel Poly(ethylene glycol) based Dendrimers for Targeted Drug Delivery Applications $749,747

CR Bard 12/15/08-12/31/10

Principal Investigator, IRB 10-585 STAT-PICC: A study to Assess the Precision of the Sherlock3 CG Tip Positioning System as a Tool to Guide Peripherally Inserted Central Catheter Placement. $250,525

1-R42-DK-64500-02 1/28/09-12/31/14

Safety and Efficacy Evaluation of the Double fiber Bundle dialyzer

Role: subcontractor to perform animal safety experiments $49,000

Principal Investigator: Outcomes in Surgical Oncology: A Multi-Center Database $25,000

Principal Investigator, IRB 09-169 Evaluation of Dotarem enhanced MRA Compared to Time-of-Flight MRA in the Diagnosis of Renal Arterial Disease. $87,875

Cook Biotech Inc. $69,170, “Embolic Potential of Liquid and Liquid Derived SIS Particles” Principal investigator, McLennan G. (3% effort)

Boston Scientific Inc., $104,468 direct costs, $34,997 indirect costs. “3D Vessel Modeling Evaluation of Post-stent Coronary Artery.” Principal investigator, McLennan G (2.5% effort)

Boston Scientific Inc., $276,696 direct costs, $92,693 indirect costs. “A non-GLP study conducted in the mini swine bifurcated coronary artery model for preliminary assessment of vessel motion, stent integrity and vascular response using a bare bifurcated stent with and without side branch stenting. “ Principal investigator, McLennan G (2.5% effort)

Omnisonics, Inc., $157,300 direct costs, $52,696 indirect costs. “Prototype Percutaneous Thrombolytic Device: Testing in Subacute Inferior Vena Caval Thrombosis in a Canine Model.” Principal investigator, McLennan G (2.5% effort)

Genentech, Inc. $14,154 direct costs, $3,000 indirect costs. “Safety of tPA dwell for restoration of function of dialysis catheters.” 11/14/03-12/31/06

Principal investigator, McLennan G. (3% effort).

IMPRA/Bard, Inc. 154,650 direct costs, $38,163 indirect costs. “A prospective multicenter randomized evaluation of an IMPRA/Bard ePTEE encapsulated carbon-lined nitinol endoluminal device for AV access graft stenoses.” 1/1/01 – 12/31/04

Principal investigator**,** McLennan G. (2.64% effort).

CIRREF. $25,000 direct costs, $0 indirect costs. “In vivo activity of benzamide riboside in liver cancers.” 3/1/03 – 2/28/04

Principal investigator, McLennan G, (5% effort).

IMPRA, Inc. $42,419 direct costs, $12,895 indirect costs. “An evaluation of IMPRA/Bard FLUENCY tracheobronchial stent graft and delivery catheter system (DCS) in normal swine.” April 1, 2002 - June 30, 2004. Principal investigator**,** G.McLennan, MD. (4% effort).

Philips Medical Systems, Inc. $37,879 direct costs, $12,121 indirect costs. “MDCT in the evaluation of cardiac perfusion in a porcine model.” February 19, 2003 - February 18, 2004.

Principal investigator, X. Stantz . Collaborator, G. McLennan, MD. (1% effort).

Clarian Health Corporation. $67,000. “Cellular mechanisms of venous intimal hyperplasia.”

March 1, 2002 - February 28, 2004. Principal Investigator, G. McLennan, MD. (0% effort, salary covered by RSNA grant).

The Radiological Society of North America. $135,000. “The role of apoptosis in venous intimal hyperplasia”. July 1,2001 - June 30,2003. Principal Investigator, G. McLennan, MD. (50% effort).

Indiana University Departments of Radiology and Radiation Oncology, $16,179. “Local Delivery of 125I-Iododeoxyuridine for the prevention of Intimal hyperplasia.” December 1, 2000 - November 30, 2001. Principal Investigator, G. McLennan, MD. (10% effort).

Indiana University Dept. of Radiology, $4,988. “The photopolymerization of a polyethylene glycol derived polymer for the prevention of stenosis within transjugular intrahepatic porto-systemic shunts.” January 1, 1999 - January 1, 2000. Principal Investigator, G. McLennan, MD

Arrow International, $86,000. “Preclinical in vivo testing of the Arrow-Trerotola percutaneous thrombolytic device (PTD) for venous thrombosis.” July 17, 1998 - December 1, 1999.

Co-investigator, G. McLennan, MD, (20% effort).

Arrow International, $36,321. “The effect of the stranded Arrow-Trerotola percutaneous thrombolytic device on normal rabbit vena cava.” February 1, 1999 - January 31, 2000.

Co-investigator, G. McLennan, MD. (10% effort).

Arrow International, $24, 864. “The effect of the Arrow-Trerotola Thrombolytic Device on normal canine vein valves.” December 1, 1998 - November 30, 1999. Co-investigator, G. McLennan, MD. (12% effort).

Impra, Inc., $39,928. “Pre-clinical evaluation of Impra/Bard PTFE encapsulated carbon lined nitinol endoluminal device in normal canine AV access model.” April 10, 1999 - March 31, 2000. Co-investigator, G. McLennan, MD. (10% effort).

Boston Scientific Corporation, $26,646. “The creation and evaluation of hemodialysis fistulas with stenosis in the pig model - Phase 1.” July 21, 1998 - July 21, 2001. Co-investigator, G. McLennan, MD. (10% effort).

Boston Scientific Corporation, $39,130. “The creation and evaluation of hemodialysis fistulas with stenosis in the pig model - Phase 2.” July 21, 1998 - July 21, 2001. Co-investigator, G. McLennan, MD. (10% effort).

Boston Scientific Corporation, $34, 452. “Pre-clinical evaluation of the DestinyTM nitinol stent for the treatment of venous intimal hyperplasia associated with arterio-venous conduits.” May 1, 2000 - September 1, 2000. Co-investigator, G. McLennan, MD. (5% effort).

**APPLIED BUT NOT FUNDED:**

[1R21CA238223-01](https://public.era.nih.gov/grantfolder/viewCommonsStatus.era?encryptedParam=(v2)ETMsDgAAAWUUtJALABRBRVMvQ0JDL1BLQ1M1UGFkZGluZwCAABAAEKN96kkCVApKtbs44zitenkAAAAQ1ifVI-Zi1_-xtEsmQ7_6fgAUA_2W65Wt3B-uG3w8wp1hbTISu2s.) Strategic targeting of Hepatocellular carcinoma and its immune-microenvironment by a combination of Warburg reversal and mTOR inhibition

5/1/18-4/30/20

Co-Investigator $440,939

Society of Interventional Oncology:

The effect of lipiodol and thermal ablation on hepatocellular carcinoma

Co-Investigator

CA170597, Dept. of Defense Idea Award. Novel therapeutic use of ATPase inhibitors in Hepatocellular carcinoma: targeting HSP70/APE1 dimerization to enhance efficiency of chemotherapy submitted as pre-application 6/30/17.

BC170042P1, Department of Defense Breakthrough Award. Polymers to Fight Triple-Negative Breast Cancer; Co-Investigator. Submitted 6/8/17. $470,151

CA 160231, Dept. of Defense Career Development Award. Copper chelation and targeted inhibition of superoxide dismutase 1 activity in hepatic stellate cells as therapy in hepatocellular carcinoma; Scientific Mentor for Dola, Das (20%). Invited to apply but not funded.

CA160642, Department of Defense Idea Award. Heat Shock Protein 70 in Hepatocellular Carcinoma Progression and Reduced Efficiency of Chemotherapeutic Agents, PI (20%); Invited to apply but not funded. $628,000

1R21CA152702-01 National Cancer Institute/ NCI $284,290 direct costs, $135,700 indirect costs “Targeted liposomal delivery of Benzamide riboside for local treatment of hepatocellular carcinoma” Reviewed 6/23/10 Impact score 50 (46th%)

Principal Investigator, McLennan G (40%)

1R01CA118097-01 National Institutes of Health / NIH. $250,000 direct costs, $137,500 indirect costs.

“Image guided therapy of liver cancer.” 7/1/05 – 6/30/09

Principal investigator, McLennan G. (40% effort).

1R01CA118097-01 National Cancer Institute / NCI. $250,000 direct costs, $137,500 indirect costs to IU Cancer Center. Image guided therapy supplement – “Sustained release of benzamide riboside for intra-arterial chemotherapy.” 7/1/05 – 6/30/09

Principal investigator, G. McLennan, MD. (40% effort).

1K08DK064823-01 NIH/ NIDDK: Cellular Mechanisms of Venous Intimal Hyperplasia withdrawn 9/21/03

SIR foundation: Mentored IR Fellow for submission: In-vivo assessment of IVC trauma during complex IVC filter retrieval. Submitted 6/15/13 & resubmitted 12/15/13 $25,000.

**Clinical Trials in which Participation was Part of Clinical Care:**

BTG 7/1/2016-Present

Co-Investigator, A Phase III Clinical Trial Evaluating TheraSphere in patients with Metastatic Colorectal Carcinoma of the Liver who have Failed First Line Chemotherapy (EPOCH).

Penumbra 7/1/2013-Present

Co-Investigator, IRB 12-242 ACE: An Aneurysm Coiling Efficiency Study of the Penumbra Coil 400 System

NCI-2011-01981 ECOG-E1208 7/1/2013-Present

Co-Investigator: A Phase III Randomized Trial of Chemoembolization with or without Sorafenib in Unresectable Hepatocellular Carcinoma (HCC) in Patients with and without Vascular Invasion.

U01 HL088476-01A1 12/15/08-Present

Co-Investigator, IRB 09-282 ATTRACT-Acute Venous Thrombosis: Thrombus Removal with Adjunctive Catheter-Directed Thrombolysis.

Siemens 7/1/10-Present

Co-Investigator, IRB 09-394 Pilot Study to Evaluate New Guidance Systems for TIPS Procedures.

CR Bard 7/1/11-Present

Co-Investigator, IRB 12-1202 (RESCUE) Study of Fluency Plus Endovascular Stent Graft in the Treatment of In-stent Resetnosis in the AV Access Venous Outflow Circuit.

CR Bard 7/1/12-6/30/2015

Co-Investigator, IRB 12-504 A Prospective, Multi-center Study of the Bard Denali Retrievable Inverior Vena Cava Filter System.

Cook, Principal Investigator, IRB 07-276 Evaluation of the Zilver PTX Drug-Eluting Vascular Stent in the Above-the-Knee Femoropopliteal Artery Clinical Study Phase 2.

Co-Investigator, IRB 08-577 GORE VIABAHN Endoprosthesis versus Percutaneous Transluminal Angioplasty (PTA) to Revise Arteriovenous Grafts at the Venous Anastomosis in Hemodialysis Patients.

Co-Investigator, IRB 11-635 CHART REVIEW: Correlation of TIPS liver vascular ultrasound with hemodynamically significant TIPS malfunction.

Co-Investigator, IRB 11-146 Early TIPS for Ascites Study

Co-Investigator, IRB 09-912 Image-Guided Needle Procedure using Syngo-Guide.

Medical College of Ohio—NIH Pass-through, $59,735 “Cardiovascular Outcomes in Renal Atherosclerotic Lesions (CORAL)

**Non-Funded Studies (based on databases)**

Principal Investigator, IRB 14-048 REGISTRY: Ablation Treatments Performed in Interventional Radiology. Active

Principal Investigator, IRB 14-118 MEDICAL RECORDS: Effect of Celiac Artery Stenosis in Liver Transplant Outcomes.

Principal Investigator, IRB 14-340, Study of Thrombosed Hemodialysis Vascular Access using Backscatter. Active

Co-Investigator, Percutaneous placement of peritoneal dialysis catheters in Interventional Radiology. Pending

Co-Investigator, Metastatic Colorectal Cancer to the Liver Treated with TheraSphere. Pending

Principal Investigator, IRB 11-497 REGISTRY: Interventional Radiologic treatment of unresectable primary and secondary liver cancers: Outcomes and Analysis.

Principal Investigator, IRB 09-524 CHART REVIEW: Immunohistochemical analysis of Human Hepatomas.

Principal Investigator, IRB 09-741 Outcomes of internal-external biliary drainage for benign bile duct strictures.

Co-Investigator 13-616: Deep Vein Thrombosis formation after introduction of a non-eluting integral polymer catheter compared with conventional plyurethane PICC technology.

Co-Investigator IRB 12-221; Chart Review: Transjugular Intrahepatic Portosystemic Shunt: 20 years Experience.

Co-Investigator 12-758 Registry: Creating a Prospective Database for Liver Tumor Patients

Co-Investigator 12-828 Medical Records review of cholecystostomy tubes.

Co-Investigator IRB 11-1123 Temporary IVC Filter follow-up for Interventional Radiology.

Co-Investigator, IRB 11-379 CHART REVIEW: Clinical experience with detachable 0.018 and 0/035 Azur Hydrocolis: Technical success, challenges, and complications.

Co-Investigator IRB 10-347 Registry: Liver Tumor Tissue Biorepository

Co-Investigator, IRB 09-096 REGISTRY: Comprehensive Liver Database.

Co-Investigator, IRB 05-183 A Humanitarian Device Exemption Use Protocol of Therasphere for Treatment of Unresectable Hepatocellular Carcinoma.

**Non-Funded Clinical Reviews:**

Co-Investigator, IRB 11-006 Iatrogenic Hepatobiliary Injuries.

Principal Investigator, IRB 10-360 CHART REVIEW: Radioembolization as treatment of unresectable primary and secondary liver cancers: Outcomes and Analysis.

Co-Investigator, IRB 06-450 Vascular Access Database

Co-Investigator, IRB 09-465 REGISTRY: Retrievable vena caval filters. Why? When and How? – Clinical experience in a single-center institution.

Co-Investigator, IRB 09-1004 CHART REVIEWS: Utility of Bremsstrahlung SPECT/CT.

Co-Investigator, IRB 09-465 REGISTRY: Retrievable vena caval filters. Why? When and How? – Clinical experience in a single-center institution.

Co-Investigator, Artery Steal Syndrome after Orthotopic Liver Transplantation: Etiology, Diagnosis and Endovascular Management

**PATENTS**

Johnson M, McLennan G, inventors; Indiana University Research, Technology Corp, assignee. Sustained percutaneous delivery of a biologically active substance. United States patent application US 10/148,047. 2003 Jan 30.

**PUBLICATIONS:**

**BOOK CHAPTERS:**

1. Zhang D, Johnson MS, **McLennan G**. Restenosis. In: Mauro, Murphy, Thompson, Venbrux, and Zollikofer (Eds.) Image Guided Interventions Elsevier, 2008 Chapter 26, pp 281-288.
2. Shah H, **McLennan G**. Angioplasty/Stenting/Lysis/Thrombectomy of Hemodialysis Access. Handbook of Angioplasty and Stenting Procedures 2010 (pp. 251-274). Springer, London.
3. **McLennan G.** Cellular mechanisms of venous stenosis. In: Sze D, Ferral H, Patel NH (Eds.). Venous Interventions. Society of Interventional Radiology Syllabus Series, 2nd Edition. Fairfax, VA: The Society Interventional Radiology, 2005 (in press).
4. **McLennan G**, Mathur P, Patel NH. Tracheobronchial obstruction. In: Ray C, Hicks M, Patel NH, (Eds.). Interventions in Oncology, Society of Interventional Radiology Syllabus Series. Fairfax, VA: The Society of Interventional Radiology, 2003, Chapter 23, pp 263-280.
5. **McLennan G**, Shah H. Dialysis Intervention. In: Morgan R, Walser E, (Eds.). Handbook of Angioplasty and Stenting Procedures. 2009
6. Zhang D, Johnson MS, **McLennan G**. Restenosis. In: Mauro, Murphy, Thompson, Venbrux, and Zollikofer (Eds.) Image Guided Interventions, 2nd Edition Elsevier, 2013 Chapter 26, pp 281-288.

**RESEARCH PUBLICATIONS:**

**Peer Reviewed Papers:**

1. Bunding Lee KA, **McLennan G.**, G. JG. Surface enhanced raman scattering from EDTA. Ber Bunsenges Physical Chemistry 1987; 91: 305-308.
2. Bunding Lee KA, Mowry R, **McLennan G**. Incorporation of N-octadecyl-4-pyridinium-4’pyridyl bromide or N-octadecyl-4,4’bipyridinium dibromide into self-assembled hexadecyl-mercaptan monolayers on gold electrodes. Journal of Electoanalytical Chemistry 1988; 246: 217-224.
3. [Patel NH, **McLennan G**, Shah H.](http://www.ncbi.nlm.nih.gov/sites/entrez?Db=PubMed&Cmd=ShowDetailView&TermToSearch=10496709) Introduction of a PTFE-covered long, spiral-articulated Palmaz stent through a 10-F sheath using umbilical wrapping technique. J Vasc Interv Radiol. 1999 Sep;10(8):1063-6.
4. Leobandung, W; **McLennan, G.**, Patel, NH; Moresco, KP; Peppas, NA. The characterization of P(PEGMA-CO-PEGDMA) gels for use in coating the tract of a transjugular intrahepatic porto-systemic shunt. American Chemical Society, Polymer Preprints. 1999; 40(1):337-338.
5. Patel, NH; Moresco, KP; **McLennan, G.,** Dreesen, RG. Percutaneous transmyocardial intracardiac coronary retroperfusion shunt (TICRS): technical feasibility study.Journal of Vascular and Interventional Radiology 2000; 11(3): 382-390.
6. **McLennan G**., Johnson MS, Stookey KR, Zhang Z, Fife WK. Kinetics of release of heparin from alginate hydrogel. Journal of Vascular and Interventional Radiology 2000; 11:1087-1094.
7. **McLennan G**, Trerotola, SO, Davidson D, Rhodes CA, Lazzaro C, Dreesen RG, Gerald Tenery G. Pre-clinical evaluation of the effect of the Arrow-Trerotola Percutaneous Thrombectomy Device (PTD) on normal canine vein valves. Journal of Vascular and Interventional Radiology 2001; 12(1):89-94.
8. Trerotola, SO; **McLennan, G**; Davidson, D; Dreesen, RG; Lazzaro, C. Preclinical in vivo testing of the Arrow-Trerotola Percutaneous Thrombolytic Device (PTD) for venous thrombosis. Journal of Vascular and Interventional Radiology 2001; 12(1): 95-103.
9. **McLennan, G**; Trerotola, SO; Forney, M; Jellison, B; Dreesen, RG; Gerald Tenery, G. Short term patency and safety of a Polytetrafluoroethylene (PTFE) encapsulated stent deployed across the venous anastomosis of loop grafts in a canine model. Journal of Vascular and Interventional Radiology 2001; 12(2): 227-234.
10. Trerotola SO, **McLennan G**, Eclavea A, Salis A, Davidson D, Dreesen RG, Tennery J. Mechanical thrombolysis of venous thrombosis in an animal model using temporary caval filtration. Journal of Vascular and Interventional Radiology 2001; 12(9):1075-1085.
11. Kohli MD, Trerotola SO, Namyslowski J, Stecker MS, **McLennan G**, Patel NH, Johnson MS, Shah H, Seshadri R. Outcome of polyester cuff retention following traction removal of tunneled central venous catheters. Radiology 2001:219(3) 651-654.
12. Johnson, MS; **McLennan, G**; Lalka, SG; Whitfield, RM; Dreesen, RG: The porcine hemodialysis access model (HAM): A relevant model for pre-clinical evaluation of interventional devices and techniques. Journal of Vascular and Interventional Radiology 2001; 12(8):969-77.
13. Davis WB, Trerotola SO, Johnson, MS, Patel NH, Namyslowski J, Stecker MS, **McLennan G**, Shah H, Bihrle R, Foster R. Percutaneous imaging-guided access for the treatment of calculi in continent urinary reservoirs. Journal of Vascular and Interventional Radiology 2002; 25(2):119-122.
14. Trerotola SO, Kraus M, Shah H, Namyslowski J, Johnson MS, Stecker MS, Ahmad I, **McLennan G**, Patel NH, O'Brien E, Lane K, and Ambrosius WT. Randomized comparison of split tip versus step tip high-flow hemodialysis catheters. Kidney International 2002; 62:282-289.
15. Stantz KM, Liang Y, Meyer CA, Teague S, Stecker M, Hutchins G, **McLennan G**, Persohn S. In-vivo regional myocardial perfusion measurements in a porcine model by ECG-gated multislice computed tomography. Proc. SPIE 5031, Medical Imaging 2003: Physiology and Function: Methods, Systems, and Applications, 222 (May 2, 2003)
16. [Rundback JH, Wright K, **McLennan G**, Lang E, Sullivan K, Bettmann M, Bansal S, Landow W, Bloom N; Cardiovascular and Interventional Radiology Research and Education Foundation Research Committee.](http://www.ncbi.nlm.nih.gov/sites/entrez?Db=PubMed&Cmd=ShowDetailView&TermToSearch=14514801)Current status of interventional radiology research: results of a CIRREF survey and implications for future research strategies. J Vasc Interv Radiol. 2003 Sep;14(9 Pt 1):1103-10.
17. **McLennan G**, E.K. Cressman, J. Mandar, Z. Dianbo, X. Yonghua, H. Jayaram. The Effect of Benzamide Riboside on a VX2 Model of Liver Cancer in Rabbits. Journal of Vascular and Interventional Radiology 2005 16:1499-1504.
18. Xu Y, Jagtap MR, Garland T, Mendonca MS, **McLennan G.** Iododeoxyuridine uptake in proliferating smooth muscle cells in vitro. J Vasc Interv Radiol. 2007 Jan;18(1 Pt 1):73-8.
19. Hendee WR, [Banovac F](http://www.ncbi.nlm.nih.gov/sites/entrez?Db=pubmed&Cmd=Search&Term=%22Banovac%20F%22%5BAuthor%5D&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_RVAbstractPlus), [Carson PL](http://www.ncbi.nlm.nih.gov/sites/entrez?Db=pubmed&Cmd=Search&Term=%22Carson%20PL%22%5BAuthor%5D&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_RVAbstractPlus), [DeFronzo RA](http://www.ncbi.nlm.nih.gov/sites/entrez?Db=pubmed&Cmd=Search&Term=%22DeFronzo%20RA%22%5BAuthor%5D&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_RVAbstractPlus), [Eckelman WC](http://www.ncbi.nlm.nih.gov/sites/entrez?Db=pubmed&Cmd=Search&Term=%22Eckelman%20WC%22%5BAuthor%5D&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_RVAbstractPlus), [Fullerton GD](http://www.ncbi.nlm.nih.gov/sites/entrez?Db=pubmed&Cmd=Search&Term=%22Fullerton%20GD%22%5BAuthor%5D&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_RVAbstractPlus), [Larson SM](http://www.ncbi.nlm.nih.gov/sites/entrez?Db=pubmed&Cmd=Search&Term=%22Larson%20SM%22%5BAuthor%5D&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_RVAbstractPlus), [**McLennan G**](http://www.ncbi.nlm.nih.gov/sites/entrez?Db=pubmed&Cmd=Search&Term=%22McLennan%20G%22%5BAuthor%5D&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_RVAbstractPlus), [Welch MJ](http://www.ncbi.nlm.nih.gov/sites/entrez?Db=pubmed&Cmd=Search&Term=%22Welch%20MJ%22%5BAuthor%5D&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_RVAbstractPlus). Biomedical imaging research opportunities workshop IV: a white paper Med Phys. 2007 Feb;34(2):673-9.
20. **McLennan G**. Vein Preservation: An Algorithmic Approach to Vascular Access Placement in Patients with compromised Renal Function. J Assoc Vasc Access 2007; 12(2) 35-37.
21. Babs'kyĭ AM, Ju S, Topper S, Bennett S, Atthe B, McLennan G, Bansal N. [Noninvasive monitoring of the hepatocellular carcinoma growth by the method of 1H and 23Na nuclear magnetic resonance]. Ukr Biokhim Zh. 2008 Jul-Aug;80(4):130-7. Ukrainian. PubMed PMID: 19140459.
22. Ju S, **McLennan G**, Bennett SL, Liang Y, Bonnac L, Pankiewicz KW, Jayaram HN. Technical Aspects of Imaging and Transfemoral Arterial Treatment of N1-S1 Tumors in Rats: An Appropriate Model to Test the Biology and Therapeutic Response to Transarterial Treatments of Liver Cancers. J Vasc Interv Radiol 2008.
23. Babsky AM, Ju S, Topper S, Bennett S, **McLennan G**, Bansal N. Noninvasive Monitoring of the Hepatocellular Carcinoma Growth by the Method of 1H and 23Na Magnetic Resonance. Ukr Biochem J. 2008; 80(4): 130-137.
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